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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---|------------------|
| 10/527,409 | 12/27/2005 | Jan Gerritse | 2004-1039 | 4842 |
| <div>466 7590 02/23/2009 YOUNG & THOMPSON 209 Madison Street Suite 500 ALEXANDRIA, VA 22314</div> | | | <div>EXAMINER WARE, DEBORAH K</div> | |
| | | | <div>ART UNIT PAPER NUMBER 1651</div> | |
| | | | <div>MAIL DATE DELIVERY MODE 02/23/2009 PAPER</div> | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/527,409

Applicant(s)

GERRITSE ET AL.

Examiner

DEBBIE K. WARE

Art Unit

1651

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 9, 10 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 11-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claims 1-17 are presented for reconsideration on the merits.

Response to Amendment

The extension of time and amendment filed July 23, 2008, have been received and entered.

Election/Restrictions

Applicant's election with traverse of Group I, claims 1-8 and 11-16, in the reply filed on December 1, 2008, is acknowledged. The traversal is on the ground(s) that sodium nitrate, according to Applicants' specification, is an electron acceptor. This is not found persuasive because sodium nitrate is not defined as an electron acceptor in the claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Hence, the argument that both Groups I and II require an electron acceptor and have a common special technical feature is not persuasive. The claims of Group II do not necessarily require sodium nitrate but rather this claim feature is optional because it is not in the independent claim; and furthermore nitrate is also a nutrient source which may be a different function than an electron acceptor. More particularly, the sodium nitrate is not defined by the claims to serve as an electron acceptor and notably Group I does not define sodium nitrate to be an optional electron acceptor. Furthermore, Group I does not require an aqueous composition as does Group II.

Therefore, the two groups do not necessarily share a common technical feature

as Group I requires an electron acceptor and Group II does not require an electron acceptor, since it is not defined as such; and sodium nitrate is an optional ingredient of a composition and the method of Group II (claim 10) does not require an electron acceptor. An art reference which reads on Group I will not necessarily read on Group II and the "special technical features" do not define as a whole the claimed separate and distinct inventions' contributions over the prior art. Applicants' arguments are not deemed persuasive. It is possible that the claims can be rejoined, however, upon indication of allowable subject matter providing that the non-elected claims contain the allowable subject matter, in which case upon indication of allowable subject matter the claims will be rejoined and the restriction requirement withdrawn.

The requirement, however, at this time is still deemed proper and is therefore made FINAL.

Claims 9-10 and 17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention(s), there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on December 1, 2008.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-8 and 11-16 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hince (USP 6432693), previously cited on PTO-1449 Form.

Claims are drawn to a method for the anaerobic degradation of hydrocarbons present at a contaminated site (i.e. soil), wherein a combination of one or more humic acids and at least one electron (i.e. nitrate) is added to anaerobic bacterial populations.

Hince teaches the presence and degradation of trichloroethylene (TCE) among other hydrocarbons, note column 1, last 20 lines. Nitrate is disclosed to be an electron acceptor at column 15, lines 40-45 and a combination of humic acid and nitrogen acceptor, including nitrate is disclosed at column 16, lines 53 and 55-56. The

percentage amounts are disclosed to within the 1 to 20 weight percent at column 6, lines 1-15 and 35-67 and 61 and column 9, lines 65-67 and column 5, all lines. Also note column 10, all lines. The mixture of humic acid and nitrate are clearly described by the cited reference and anaerobic biological degradation of aromatic and aliphatic hydrocarbons are disclosed as well.

The claims are identical to the cited teachings are, therefore, considered to be anticipated by the cited reference. However, in the alternative that there is some difference between the claims and Hince USP '693, then such difference is considered to be so slight as to render the claims obvious over the cited reference. Hince discloses phenyl containing aromatic hydrocarbons, note column 1, all lines, and line 31. Hince also discloses that soil is a location that can be treated by the disclosed method, see column 1, last 20 lines. The contaminants are varied and include PAHs and oil, etc. Note column 1, lines 20-35 and other citations noted above. TCE is disclosed as are humic acids and nitrate as discussed above.

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the teachings of Hince to degrade BTEX using TCE as an electron acceptor and purified humic acids because TCE would have been expected to function as an electron acceptor since it is disclosed to be present in the contaminated soil.

Further it is disclosed that a broad range of recalcitrant and/or hydrophobic organic contaminants such as PCBs, biphenyl, etc. are degraded in the presence of

humic acids and nitrate. Thus, to purify the humic acids is clearly an obvious modification of the cited prior art.

One of ordinary skill in the art would have expected BTEX to be degradable by the Hince method and composition because it is disclosed that a broad range of recalcitrant and/or hydrophobic organic contaminants such as PCBs, biphenyl, etc. are degraded in the presence of humic acids and nitrate.

Hince would have clearly motivated one of skill in the art to use an electron acceptor as nitrate, or TCE since it is present in the soil as disclosed by Hince, and humic acids in a purified form. Thus, in the absence of persuasive evidence to the contrary the claims are deemed prima facie obvious over the cited prior art

Response to Arguments

Applicant's arguments filed July 23, 2008, have been fully considered but they are not persuasive. The argument that Hince (USP '693) cited of record, does not teach hydrocarbons is noted, however, Hince does teach at col. 6, lines 5, halogenated alkenes, such as TCE (trichloroethene) and the like. Thus, the claimed invention's hydrocarbons are clearly disclosed by the cited reference. These halogenated alkenes are much more difficult to degrade and hence the degradation of unhalogenated alkenes or aliphatic alkenes are inherent to the cited disclosure of Hince of record. Further biphenyls such as PCBs are encompassed by the teachings of the reference and further aromatic hydrocarbons are at least inherent if not taught by the cited reference because the phenyl rings are included in the structure of PCB of which also biphenyl is derived from benzene. These polyaromatic compounds are extremely

difficult to degrade and the reference clearly can be expected to work with aromatic hydrocarbons such as chlorobenzene or monochlorobenzene.

The reference clearly teaches that TCE can function as an electron acceptor as well and furthermore humic acids are disclosed. The presence of the mixture is inherent to the teaches of the cited reference or are at least suggested, if not clearly taught in combination. To combine them would have at least been an obvious modification of the cited prior art. In addition the claims are not limited to the degradation of benzene alone.

Hince clearly teaches that humic acids can be selected and Applicants' claims do not exclude other components. The presence of humic acids with other compounds such as TCE will inherently degrade benzene. The activation of genes is also considered to be an inherent property of the combination disclosed by Hince. The compounds of Hince consist of carbon and hydrogen only with halogens attached to the carbons as claimed herein. Therefore, the compounds of Hince meet the definition of hydrocarbons. The presence of benzene compounds as a contaminant can act to form biphenyl compounds, like those disclosed by Hince, of which can be clearly degraded by the method steps and components disclosed by Hince. The degradation of benzene is intrinsic or inherent to the teachings of Hince and thus, is anticipated by Hince.

The arguments regarding claims 9 and 10 are not relevant to the claims which have been examined on the merits. The method claims of Group I do not require an aqueous composition which is another difference between the groups.

The rejection is, therefore, sustained.

Claim Rejections - 35 USC § 103

Claims 1-8 and 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hince, as cited and discussed above, in view of newly cited Castaldi (USP 5232596).

Claims and previously cited Hince are discussed above.

Castaldi clearly teach that benzene is degradable in bioremediation systems, note col. 5, lines 34-41 and col. 6, lines 14-15 and col. 21, lines 53-55 and col. 23, lines 50-55.

Claims differ from Castaldi et al in that benzene is not clearly disclosed to be degraded.

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was filed to select the method of Hince for degrading benzene as disclosed by Castaldi et al because they teach that these hydrocarbons are degradable in anaerobic systems. Therefore, one of skill would have been motivated by Hince in view of Castaldi et al (Castaldi) to degrade hydrocarbons in the presence of an electron acceptor and humic acids under appropriate and suitable conditions for bioremediation. Each of the claimed features are discussed herein and above and are clearly disclosed or are anticipated by the cited prior art. The degradation of monochlorobenzene is clearly suggested by the prior art. One of skill would have expected successful results. In the absence of persuasive evidence to the contrary the claims are deemed prima facie obvious over the cited prior art.

All claims fail to be patentably distinguishable over the state of the art discussed above and cited on the enclosed PTO-892 and/or previously enclosed PTO-1449. Therefore, the claims are properly rejected.

The remaining references listed on the enclosed PTO-892 and/or previously enclosed PTO-1449 are cited to further show the state of the art.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEBBIE K. WARE whose telephone number is (571)272-0924. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 1651

/Deborah K. Ware/

Deborah K. Ware

Examiner

Art Unit 1651